



Isle Royale National Park: Replace the Ranger III



Above: The MV-Ranger III has for years provided transportation for park visitors and freight between Houghton, MI, and Isle Royale National Park.

Mega-Project* Profile: The Ranger III replacement

Estimated cost: \$25 to \$30 million (preliminary)

Percentage of the Midwest Region (MWR) FLTP Annual Allotment: 260% to 330%

Percentage of NPS FLTP Annual Allotment: 12% to 15%

Project Description. Due to the isolation of the Isle Royale National Park (ISRO) and the desire to maintain the wilderness environment, water-based transportation is the primary means of transportation at ISRO. All visitors, employees, fuel, food, waste, and construction materials—everything that is needed to operate the park and support the park visitors and the concessionaire is transported by vessel, primarily the MV-Ranger III. This ship, the park's main vessel, has been in continuous service for nearly 58 years, and needs to be replaced.

Background: Isle Royale National Park (ISRO) is a remote archipelago located in western Lake Superior. Twenty miles from the closest mainland and 73 miles from the park's headquarters in Houghton, Michigan, ISRO provides solitude and adventure for its visitors. Known for its wolf and moose populations, fishing, and ship wrecks, visitors may come for a day or stay for a week at a time to hike, fish, boat, or paddle the island's lakes and inlets.

The MV-Ranger III was built by the Christy Corporation of Sturgeon Bay, Wisconsin, and delivered to ISRO in September 1958. It is 165 feet long, weighs 650 tons, and is the largest piece of moving equipment owned by the National Park Service.

The vessel's primary mission is logistical support for the park's island operations. The MV-Ranger III provides regularly scheduled passenger, freight, and diesel fuel deliveries from Houghton, Michigan, to the park. In addition to passenger transport, all park staff and the majority of freight for projects and construction contracts are transported to and from the island on this craft. All diesel fuel required to run the electric generators on the island is transported by the MV-Ranger III.

Two commercial marine concessionaires also provide visitor transportation by operating two 48- and 75-passenger vessels between Grand Portage, Minnesota to Windigo and Rock Harbor, and a 100-passenger vessel between Copper Harbor, Michigan, and Rock Harbor. One of the vessels from Grand Portage circumnavigates the island and delivers US mail. The private vessels are smaller than the Ranger III (under 100 tons), were built primarily for passenger service, and have limited capacity for transporting freight beyond the visitors and their personal effects. The island is also served by a five-passenger seaplane.

Current Status: The MV-Ranger III was repowered in 1999 and has had continuous maintenance and electronic upgrades.



Top: The MV-Ranger III in dry dock.

Middle: The MV-Ranger III docked at Mott Island, ISRO

Bottom: The MV-Ranger III docked at the Windigo main dock, ISRO

* Mega Projects: The NPS transportation system is supported, in part, by funds from the Federal Lands Transportation Program (FLTP). Currently, the NPS is authorized an annual budget of \$268 million from the FLTP. These funds are apportioned by formula among the seven NPS Regions. Most of these funds are used for "transportation asset management" – that is, to pay for the work required to keep existing assets in good condition. There are some projects, such as a major bridge repair or ship replacement, that require a much larger amount of funding than is available on an annual basis to a Region. These we call "Mega Projects." The NPS is pursuing strategies to fund these projects.

The ship has four integral, single-skin oil tanks, and received a congressional (OPA-90) waiver on mandated double-hulling of the "cargo" oil tanks.

The Ranger III is a United States Coast Guard inspected ship and must be dry docked every five years at a base cost of approximately \$350 thousand dollars. Normal upgrades add another 50%-75% to the base cost of dry docking. While the vessel has had many upgrades over its lifetime, the hull, plumbing, heating, electrical, propulsion and interior cabin components are original equipment.

Wallboard, ceiling tile, flooring tile, and underlayment have asbestos content under years of layered paint. There is localized damage to flooring tiles and underlayment which requires repair or total replacement to meet EPA asbestos standards. Portions of the insulation in machinery spaces have asbestos content which has been maintained to EPA standards. Interior structural framing components below the main deck are coated with lead-based preservative paint.

Most auxiliary equipment components including an anchor windlass, mooring winches, fire pumps, ballast pumps, controllable pitch propeller system, electrical distribution panels, emergency generator and emergency steering gear are nearly 58 years old and must be maintained to USCG standards. The deck crane, which handles 40% of all cargo, is 30-plus years old. The current steering gear does not have a redundant back-up system and is grandfathered from meeting current industry standards. Most of the original equipment manufacturers are no longer in business, requiring that parts be custom made or the component replaced in whole, to maintain USCG-inspected safety standards.

The cost to maintain the MV-Ranger III to ever stricter safety standards increases exponentially every year as

this heavy marine equipment ages. Since the MV-Ranger III is the largest and most versatile member in the ISRO marine fleet, plans should now be made for its' replacement. Considering congressional funding lead times, marine engineering and architectural work, and contracting and actual build schedules, this process is anticipated to take a minimum of 5-7 years.

Funding: ISRO is studying options for replacing or upgrading the MV-Ranger III. A preliminary estimate shows that it will cost approximately \$25 to \$30 million (2018) to replace the ship.

If it were to replicate all the current Ranger's functions, the new vessel would be built of steel, and would have:

- an ice-strengthened bow;
- a 5-ton pedestal-mounted deck crane; lounges for 149 day passengers;
- satellite internet, TV, and an interpretive theater;
- quarters for seven crew plus eight other bunks in four staterooms for visiting officials.

The ship would also have interior weather-tight cargo spaces; full ship fire suppression system; full galley; hydraulically operated cargo doors and hatches; a ballast water treatment system; twin engines; twin controllable-pitch-propellers; a bow thruster; 1,000 cubic feet of refrigerated and freezer cargo space; modern life raft launching systems; a fire-fighting monitor with external hydrants; double-hulling and added compartmentalization (to survive a laceration of the hull); a #2 oil transfer system; 15,000 gallon diesel oil capacity, and state-of-the-art navigation systems.

The Future: The new vessel could be similar to the Ranger III, or the Ranger's functions could be divided between several vessels if it would increase efficiency or improve park operations. Given the long life of ships in the fresh waters of the Great Lakes, a new ship would service the needs of ISRO for the next 30 to 50 years.